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ABSTRACT

A study was conducted to determine if instruction in the cloze procedure could affect standardized reading comprehension test scores. Subjects were 33 high school sophomores enrolled in two separate remedial reading classes. One intact class served as the experimental group, the other as the control. All subjects were given the Gates MacGinitie Reading Tests as a pretest to determine their levels of reading comprehension. Subjects in the experimental group received 27 lessons involving cloze exercises over a 14-week period. These exercises deleted either nouns, verbs, adverbs, and adjectives or structure words. The control group received the same instruction as the experimental group, but without the use of the cloze exercises. At the end of the 14-week period, all students were retested with the Gates MacGinitie Tests. The results indicated a reading comprehension gain for those students in the experimental group. (A copy of one of the cloze exercises is appended.) (FL)

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THE EFFECTS OF THE CLOZE TECHNIQUE IN THE MEASUREMENT OF READING COMPREHENSION

by

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ABSTRACT

The cloze procedure is a precise measure of reading comprehension. This study reviews the effectiveness of the cloze procedure in helping the classroom teacher to diagnose a student's growth and development in reading comprehension. The advantages and disadvantages of the cloze procedure are closely examined. Thirty-three remedial tenth grade students were selected for this investigation. The students were pre and post tested with the Gates MacGinitie Reading Test. The results indicated a gain for those students who were exposed to the cloze procedure technique for improving comprehension.

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Some students entering our secondary schools are reading several grades below level, therefore, we must implement various programs to meet their needs. Within each of these reading classes there is a wide range of abilities, therefore, we must find avenues to satisfy these needs. The cloze procedure has proved to be a successful instructional method for enhancing reading comprehension. It is also a valuable tool for teaching the use of context and the development of vocabulary. It is one technique that can be easily varied for the different levels of reading ability.

Wilson Taylor introduced the term cloze in 1953. The cloze procedure is based on the Gestalt principle of closure which maintains that human behavior is motivated by the need for wholeness or completeness (Richardson, 1980;2). Hence, it was Taylor's belief that if a person could experience understanding from a printed passage by replacing the exact missing word, he was experiencing closure. The procedure is used to supply a systematically deleted word from a content area passage. According to Taylor (1956) the close procedure can also be used to estimate readability of material used for classroom instruction and to measure reading comprehension. Rankin (1959) concurs with Taylor that the use of cloze is a valid measure for passage difficulty. Many educators believe that cloze is also useful as a teaching technique: a tool to be used to encourage divergent production, and improve read-

ing comprehension (Bortnick and Lopardo, 1976: Rankin 1977). Studies conducted by Bloomer, (1962) and (1966) and Kennedy and Weaver (1973) demonstrate that cloze does improve reading comprehension. Each researcher presented annotated studies to substantiate this premise. Conflicting views concerning the use of the cloze procedure became evident when Schneyer (1965), and Keitzmann and Bloomer (1967) produced evidence that indicated no better comprehension was evident. However, Jongsma (1971) indicates that research concerning the cloze procedure as an instructional tool is scarce.

This investigation will attempt to evaluate the effects of the cloze procedure upon the reading comprehension of remedial tenth grade students. For the purpose of this study, the students were divided into two groups - the control group and the experimental group. The role of the teacher was that of a facilitator, instructor and evaluator.

Hypothesis

The various studies support the view that cloze instruction improves comprehension. Little direct evidence exists to show whether instruction in cloze effects test results when the instrument used utilizes the cloze technique. It is hypothesized therefore, that there will be no significant difference on the Gates MacGinitie Reading Test for students who participate in the Reading Advancement Program and receive instruction in the cloze procedure, and those in

comparable Reading Advancement classes with no cloze instruction.

Definitions

Cloze is the process of systematically deleting words or portions of words from selected passages and replacing those deleted words with the underline of standard or consistent length.

Reading Advancement Program is a remedial reading class for students, grades 9-12 needing remedial assistance in Reading. Students' strengths and weaknesses are determined and instruction is provided in areas of specific needs.

Assumptions

As Jongsma's (1971) study has indicated, there is not a wealth of research concerning cloze as an instructional tool. Most studies at the secondary level, the focal point of this experiment, are in content classes. This project is limited to two Reading Advancement classes in the same school, with students from similar backgrounds and experience. The only variation in instruction is that one class will be exposed to the cloze method. This should not give the experimental group an advantage on the Gates MacGinitie Reading Test.

Limitations

Secondary Reading programs are not a regular facet of the High School curriculum. The students enrolled in Reading Advancement classes are a small percentage of the school population. The number of standardized and criterion reference tests administered has greatly increased within the last five years. Since the students in Reading Advancement classes traditionally do not perform well on these tests, their motivation to achieve has diminished. It is assumed that a longitudinal study would produce more accurate results, but such is precluded in the time frame provided for this study.

Procedures

The Guidance Department of the high school scheduled two groups of sophomores to Reading Advancement classes. One group consisted of seventeen students and the other group consisted of sixteen students. The two groups were from an urban district with similar experiences and background. For the purpose of this experiment, both groups received the Gates MacGinitie Reading Test as a pre test to determine levels of reading comprehension. One group received instruction using the cloze procedure, the second group did not. Since the two groups were close in size, it was not necessary to add students to balance the two classes. The thirty-three spohomores were of average intelligence and came

from homes of comparable socio-economic status.

The reading teacher who was completing requirements for a Master's degree in reading was responsible for all instruction. The instructor has been working in this capacity for a period of five years. One experienced reading aide assisted in both classrooms. The instructor and aide were comfortable working together. The administration and scoring of all exercises was done by the instructor.

A series of approximately two hundred word cloze exercises based on materials used in this class was provided by the instructor. Two types of cloze exercises were prepared. One was based on the deletions of nouns, verbs, adverbs and adjectives, and the other omitted structure words. The passages were constructed and administered to the experimental group twice weekly. The control group received basically the same instruction without cloze exercises. After each exercise was completed, it was scored by the instructor and returned to the students the following day. Each exercise was reviewed, discussed and the correct choice for each blank was inserted by the students. Students were provided with a graph to chart their scores and progress. After receiving twenty-seven instructional sessions of cloze exercises during fourteen weeks, both broups were retested using the Gates MacGinitie Reading Tests.

Results

Table one included in this study indicated that the experimental sample using the cloze procedure made a significant improvement in comprehension by the end of the trial period.

Table I

T-test Results on Pre and Post Test Scores

	M	S.D.	t	
Pre-test 1	7.4	1.96	1.45	N.S.
Pre-test 2	6.7	1.98		
Post-test 1	7.4	2.02	5.59	Sig. 01
Post-test 2	8.7	1.83		

At the out set of this study a measure of reading comprehension was administered to both samples to determine whether they were similar or different. The t of 1.45 indicated that there was no significant difference in ability between the experimental and the control groups. This test did however, measure in a definitive manner the students strengths and weaknesses in the area of comprehension and did show the experimental sample was seven months less able in comprehension than the control sample.

The results of the post-test in comprehension for the experimental group indicated a gain of 2.0 years, while the control group's measured ability remained the same. This

result is ultimately reflected in the t of 5.59 found in the mean difference between the samples and which was significant at less than .01 level.

Conclusions

Although the hypothesis stated there would be no significant difference on the Gates MacGinitie Reading Test, for students who participated in the Reading Advancement Program and those who received instruction in the cloze procedure, the data indicates that significant growth and improvement in comprehension occured for those students utilizing the cloze technique. The hypothesis, therefore, was rejected.

The results of this study suggest that cloze procedure can be effectively used in the high school classroom, as it affords the classroom teacher with an additional method for instruction in comprehension. If positive gains are to be obtained from the cloze procedure, the instructor must be aware of test construction and utilization of this procedure. It is essential that this method be used in conjunction with other techniques to teach comprehension. Cloze is particularly appealing to young people because of its game like format and its utilization of current topics. For example, teachers can take selected passages from the assigned lessons and present them utilizing the cloze procedure, so that comprehension can be more easily grasped.

CLOZE TECHNIZUE: RELATED LITERATURE

The research supports the early work of Messrs. Rankin, MacGinitie and Fillenbaum who were forerunners in the cloze technique procedure. It was Rankin who first emphasized that selective deletions could closely relate to the learner's knowledge of a selected reading passage when he says:

> "...the words to be deleted are selected by a mechanical procedure such as leaving out every 5th or 10th word or by selecting words through use of a table of random numbers. Words may be deleted throughout the length of the entire article or deletions may be restricted to samples of lines from the total passage, provided that the line samples are chosen by some random or "every nth" procedure...word deletions may be made without reference to the type of word selected or may be restricted to certain grammatical forms such as nouns and verbs. The only restriction is that the method used be mechanical and objective" (Bork, 1979:133).

MacGinitie agreed with Rankin's pattern of deletions, but, he added that only every fifth word should be deleted. The reason cited for deleting only every fifth word was additional uninterrupted context beyond five words did not help in the restorations of the missing words (Jongsma, 1973:3). Differing with both Rankin and MacGinitie's earlier studies is Fillenbaum. Fillenbaum (1963) found that the number of successful responses increases moderately with decreases in rate of deletions (Jongsma, 1973:3). However, his research does not indicate specifically when the moderate increase in deletions failed to produce predictability. As the success in the use of word deletions

progresses, Greene, (1965); Heitzman and Bloomer, (1976); Weaver and Bickley (1967), suggest specific types of deletions specifically suggested are deletions of nouns, verbs, adjectives and adverbs. It was proved that this type of deletion produced a more reliable test. Furthermore, it distributed more evenly the level of difficulty developed in a cloze type reading test. Greene at this time was the only researcher who advocated every twelfth word deletions. Since little attention had been directed to the construction of the cloze test, the researchers interest in the test construction became contributory to the improvement of cloze construction.

Scoring the cloze test has resulted in differing opinions among the researchers. One group of researchers have indicated that only an exact response can predict the student's comprehension. William D. Page (1977) substantiates his research on the reliability of the cloze test to predict student performance by quoting Bormuth's study of 1969. In this study Bormuth concludes that a reliable prediction of scores on a multiple choice test can be obtained if the responses for the required blank space are exact and if every fifth word is deleted. Jongsma (1971) concurs with Bormuth's 1969 study that the deletion of every fifth word is an effective method for constructing a cloze passage. However, Culhane offers a variation in his

1970 report. He recommends tenth word deletions for factual material and fifth word deletions for narrative material.

A second group of researchers have presented documented evidence that the synonym count can equally predict the student's comprehension. While the argument has not been resolved, the effectiveness of the test as a predictor of the student's comprehension of a written passage has not been lessened. Since the synonym count is rarely inappropriate, the classroom instructor can learn much about the student's knowledge of the passage and semantic use of language, a fact supported by Taylor in 1953 and Vaughan, Tierney and Alpert in 1977. They presented evidence that semantically acceptable answers were rarely wrong syntactically (Haerman, 1978:84). Hence, from the studies read on the method of scoring, one method is not more superior than the other as either scoring method will provide a valid indicator of the student's comprehension. Currently there is no research which indicates which procedure is most preferable.

The administration of the cloze test is the final area of concern for the instructor. Statistics and research have not been refined to indicate a specific approach. Consequently, the freedom of choice in the method of administration may vary. The variation may be an asset as it permits the instructor to decide which directions best meet the needs of the students being tested. This lack of a

specific set of rules has not been documented as a detrimental factor in administration of the test. Therefore, administration is an area for researchers to investigate more thoroughly.

An example of a study that validates the cloze procedure is a useful technique to measure high school student's comprehension growth is recorded in the study conducted by Jenkinson in 1957. In this research, she successfully measured the comprehension of high school students on three types of literary passages: descriptive-metaphorical, allegorical, and ironical. She observed through her research that the students were using structure, semantic and syntatic clues, which are so necessary for interpreting a cloze passage to obtain the correct response. From this study, Jenkinson concluded:

> "that cloze procedures could be easily utilized to measure reading achievement of an individual in several curricular ideas." (Weintraub, 1968:571).

Consequently, Jenkinson's study provided substantial proof that the cloze procedure used in conjunction with other reading devices will benefit the classroom teacher and the student in the area of comprehension.

The types of comprehension to be measured by this test are specific and general. Specific comprehension is directly concerned with the understanding of the written passage by using multiple-choice questions to evaluate the selected

reading passage. It also measures a student's ability to make an educated guess. The process of using multiple-choice questions can be thought of as a precise measure of reading comprehension with emphasis given to the effect of speech patterns on a reader's performance. The remedial reader often lacks the ability to recall specific details in a selected passage. This approach seems to improve the reader's proficiency of recalling detailed information. Rankin conducted a study to determine whether a cloze test measured comprehension of specific facts and comprehension of general relationships between ideas. He discovered that factual comprehension is obtained when nouns and verbs are deleted from the passage and a more accurate measurement of the comprehension of relationships is obtained when any word is randomly deleted from the passage. Rankin and Taylor reported that cloze tests are reliable indicators for measuring specific comprehension of a selected passage.

General comprehension is concerned with scores on standardized reading comprehension tests. In the cloze procedure, general comprehension is measured by the number of deletions and the difficulty of deletions the instructor uses to construct the test. Therefore, the number of deletions and the level of difficulty of the deletions will help determine how much information the student comprehended. Because the instructor is able to assess the student's ability to comprehend a written passage, this information has

proved to be both valid and reliable.

There are three distinct advantages for using the cloze procedure. An instructor can quickly diagnose the type of errors a student has made by studying the responses given for the deleted words. Likewise, the cloze procedure can provide adequate measure in the affective domain, an area frequently omitted in standardized test. Overall, the cloze procedure is a multi-purpose tool that all instructors can administer in the classroom.

The instructional value of this kind of test is the immediate feedback to the student of results. Also, the versatility of the materials and the preparation of them make cloze a convenient instructional tool the student can use to practice the reading process on his own instructional materials (Lopardo, Bortnick, 1976:116).

Finally, the cloze procedure is particularly useful as an evaluative tool because it measures both the student's performance, as well as, the difficulty of the material. It also prevents misunderstanding concerning student responses to the deleted word. The ease with which the cloze procedure can be developed, administered, and scored is another positive attribute for the use of this test in the high school classroom.

The cloze procedure provides the instructor with a degree of backtracking to better evaluate the student's response or lack of response at any point in the passage.

The opportunity to make this careful evaluation makes the cloze procedure a valuable testing tool.

While the advantages of the cloze procedure makes it use in the high school classroom an appreciative tool for the reading instructor, there are some disadvantages that the teacher should consider before selecting the cloze procedure for classroom use. First, the instructor should be aware that the cloze procedure by itself is not a valid measure for all students. Particularly if it is used with students who do not possess word recognition skills, or who are poor guessers. Also, the indiscriminate use of the cloze procedure could result in a teacher's measuring the students general understanding rather than the students true comprehension of the passage. Next, instructors who use cloze exclusively should realize that the cloze procedure is limited to the measuring of comprehension and excludes the skills of critical reading and inference. The final limitation regarding cloze is its unfamiliarity to instructors and its difficulty in construction.

From the information presented in this paper, it seems natural that the Gates MacGinitie Reading Test should be used to determine whether students who receive instruction in the cloze procedure can demonstrate greater academic achievement on a standardized test since the Gates MacGinitie Reading Test employs the cloze format. Because there are few secondary reading programs and materials and methods for

teaching high school reading classes are limited, the cloze procedure appears to be a valid procedure for instructing the older student if the instructor has been fully trained in the proper use and evaluation of the cloze procedure.

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APPENDIX

APPENDIX A

Pre and Post-Test Standard Scores for Experimental and Control Groups from Gates-MacGinitie Reading Test, Comprehension.

	Experimental		Control	
Subject	Pre	Post	Pre	Post
1	4.5	6.5	5.8	9.8
2	4.5	9.6	6.5	8.2
3	9.6	10.0	4.5	5.2
4	8.7	11.7	5.4	10.0
5	6.5	6.5	10.3	5.8
6	4.5	7.1	7.7	6.5
7	7.1	9.4	4.5	10.1
8	5.2	6.5	6.5	4.5
9	7.1	9.6	4.5	5.2
10	9.4	10.1	4.5	8.2
11	5.2	8.7	10.1	10.5
12	6.5	10.5	4.5	5.8
13	9.6	10.0	5.8	8.2
14	5.2	5.2	6.5	7.7
15	4.5	7.1	9.0	6.5
16	9.6	10.1	5.2	5.2
17	6.5	8.7		

APPENDIX B

Gain Scores Between Pre and Post-Test Scores for Control and Experimental Groups, Comprehension

	Experimental	Control
Subject	Comprehension	Comprehension
1	+2	+4
2	+5	+2
3	+.4	+.7
4	+3	+4
5	0	-5
6	+3	-1
7	+2	+6
8	+1	-2
9	+3	-2
10	+.7	+.7
11	+4	+4
12	+4	+.4
13	+.4	+1
14	0	+2
15	+3	+1
16	+.5	-3
17	+2	0

APPENDIX C

"The Telephone and Its Inventor"

A. Subject Matter Words Missing

In the nineteenth century, the _____[1] of the telegraph made it possible to _____[2] noises, signals, and even music over wires from one _____[3] to another. However, the _____[4] voice had never traveled this way. Many inventors tried to _____[5] a way to send a voice over _____[6], and in 1976 some of their efforts were crowned with _____[7]. Two American inventors, Alexander Graham Bell and Elisha Gray, succeeded at almost the same _____[8]. The United States Supreme Court _____[9] has to decide which of the two was the _____[10] inventor of the telephone.

B. Structure Words Missing

Bell never lost his interest _____[1] helping the deaf. After all, it was _____[2] of his work with them that he had begun his search _____[3] a way to reproduce the human voice electrically. _____[4] he had not tried to make speech visible _____[5] the deaf, he might never have discovered _____[6] telephone. Bell established a fund for the study _____[7] deafness. His studies showed _____[8] deafness was increasing in America, _____[9], deaf people were kept in institutions _____[10] they met and married one another.